CLAIMS

1. A metal surface-treating method

which comprises a chemical conversion step of dipping a substrate in an acidic aqueous zinc phosphate solution,

and using an aqueous zinc nitrite solution as an accelerator,

said aqueous zinc nitrite solution being substantially free of calcium ion and containing 0 to 6500 ppm of sodium ion and 0 to 20 ppm of sulfate ion in case of assuming the concentration of zinc nitrite [$Zn(NO_2)_2$] therein to be 10 weight % as NO_2.

2. The metal surface-treating method according to Claim 1

wherein the acidic aqueous zinc phosphate solution contains 0.5 to 2 g/L of zinc ion, 5 to 30 g/L of phosphate ion, 0.2 to 2 g/L of manganese ion, and 0.05 to 0.3 g/L as NO_2 of zinc nitrite.

3. The metal surface-treating method according to Claim 1 or 2

wherein the acidic aqueous zinc phosphate solution contains 0.3 to 2 g/L of nickel ion.

4. The metal surface-treating method according to Claim 1, 2 or 3

wherein the acidic aqueous zinc phosphate solution contains 3 to 30 g/L of nitrate ion.

5. The metal surface-treating method according to Claims 1, 2, 3 or 4

wherein the substrate is a shaped product having an iron type surface and a zinc type surface or one having an iron type surface, a zinc type surface and an aluminum type

surface.